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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,888	02/04/2005	Bong-Kuk Park	KSN-0001	4641
23413	7590	09/29/2005		EXAMINER
CANTOR COLBURN, LLP				LE, HOA T
55 GRIFFIN ROAD SOUTH				
BLOOMFIELD, CT 06002			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/523,888	PARK, BONG-KUK	
	Examiner H. T. Le	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date Feb. 2005
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 13 is objected to because of grammar error. Line two contains subject-verb disagreement ("materials includes"). Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear whether the percentage claimed is vol%, mol%, or wt%.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by the Senda patent (US 4,433,029).

Claim 1: Senda patent teaches expandable thermoplastic beads comprising a polystyrene core and a coating skin of polyvinylacetate and a crosslinking agent (i.e. functional additive).

See col. 1, lines 49-61; col. 2, lines 3-5 and 20-23. The functional additives are added in an amount of  $(0.08 + 0.28 + 0.15 + 50) = 50.5$  pbw per 100 pbw of the vinyl acetate (see col. 5, lines 14-28); Thus the amount of the additive is about 35 wt% while the amount of the vinyl acetate is 65 wt%.

Claims 2 and 11: See col. 2, lines 4-8. The degree of polymerization as claimed is broad enough that it covers most conventional and commercially available vinyl-acetate based polymer. Therefore, it's expected that the vinyl-acetate polymer taught by Senda exhibits a degree of polymerization within the claimed range.

Claim 3: See col. 2, lines 61-65, thus the weight of the functional skin is well within the claimed range. Because of this, it is necessarily inherent that the thickness of the functional skin is well within the claimed range.

Claim 4: See col. 1, lines 58-62.

Claim 5: See col. 4, lines 60-65.

Claim 6: See example 1. The coated polystyrene beads were rinsed in water (col. 5, lines 37-40). Water functions as the release agent. After rinsing the beads was dried by being left standing at room temperature (col. 5, lines 55-57).

Claim 7: See example 1.

Claim 8: See col. 2, lines 61-65.

Claims 9 and 13: See col. 5, lines 37-40. Water is a hydrophilic liquid having -OH groups.

Claim 10: See examples.

Claim 12: It's unclear whether the 55% as claimed is mol%, vol% or wt%. In any event, 50% as taught by Senda (col. 2, lines 9-14) is close enough to the claimed 55% that it's expected to be the same.

***Information Disclosure Statement***

6. The reference cited as US patent number 4,984,274 has not been considered as the prior art because it appears to be irrelevant to the subject matter of the claimed invention. Applicant is requested to review the patent number for any possible error and resubmit with the correct patent number if Applicant wishes for the patent to be considered.

7. References not relied upon are cited as art of interest.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



H. T. Le  
Primary Examiner  
Art Unit 1773